

In the claims:

1. (currently amended) An optical service agent operating at an optical switched router for managing a service level agreement (SLA) for a user in an optical communication network, the optical service agent comprising:

a user-to-network interface (UNI) for interfacing the user at the optical switched router with the optical communication network;

authentication logic for controlling access by the user to the UNI;

a peer-to-peer interface for interfacing the user at the optical switched router with peer users; and

optical service logic at the optical switched router, coupled to the UNI and the peer-to-peer interface, for managing connections in the optical communication network in accordance with said SLA for the user, wherein the optical switched router includes an optical switch coupling a plurality of incoming optical interface to a plurality of outgoing optical interfaces using optical switching logic controlled by the logic for managing connections, wherein the optical service logic is operably coupled to interact with a service provider network to cause the service provider network to provide replacement services without manual intervention in response to a breach of the SLA.

2. (original) The optical service agent of claim 1, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

3. (original) The optical service agent of claim 1, wherein the optical service logic is operably coupled to monitor and analyze a connection in real-time for determining SLA compliance.

4. (original) The optical service agent of claim 1, wherein the optical service logic is operably coupled to gather and maintain statistical information relating to a connection.

5. (original) The optical service agent of claim 4, wherein the optical service logic is operably coupled to analyze the statistical information off-line for determining SLA compliance, patterns, and trends.

6. (original) The optical service agent of claim 1 wherein the optical service logic is operably coupled to interact with a service provider to enforce penalty provisions in the SLA.

7. (original) The optical service agent of claim 1, wherein the optical service logic is operably coupled to interact with a service provider to negotiate a credit for services not provided by the service provider in accordance with the SLA.

8. (cancelled)

9. (original) The optical service agent of claim 1, wherein the optical service logic is operably coupled to interact with various network elements to rectify a breach of the SLA.

10. (original) The optical service agent of claim 1, wherein the optical service logic is operably coupled to interact with the service provider to dynamically modify the SLA based upon changing user requirements.

11. (original) The optical service agent of claim 1, wherein the optical service logic is operably coupled to interface with a billing/accounting system to provide SLA-related information.

12. (currently amended) An optical switched router comprising:

an optical switch coupling a plurality of incoming optical interface to a plurality of outgoing optical interfaces;

a user application requiring a communication service from an optical communication network, the communication service having an associated service level agreement (SLA);

authentication logic for controlling access by the user application to the communication services of the optical communication network; and

an optical service agent, operating at the optical switched router for managing the optical communication network by controlling the optical switch to provide the service at the associated service level agreement (SLA) to the user application, wherein the optical service agent comprises:

a user-to-network interface (UNI) for interfacing with the optical communication network;

a peer-to-peer interface for interfacing with peer users; and

optical service logic for interacting with the optical communication network via the UNI and with the peer users via the peer-to-peer interface for managing connection in the optical communication network to support said SLA for the user application, wherein the optical service logic is operably coupled to interact with a service provider network to cause the service provider network to provide replacement services without manual intervention in response to a breach of the SLA.

13. (cancelled)

14. (previously presented) The optical switched router of claim 12, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

15. (previously presented) The optical switched router of claim 12, wherein the optical service logic is operably coupled to monitor and analyze a connection in real-time for determining SLA compliance.

16. (previously presented) The optical switched router of claim 12, wherein the optical service logic is operably coupled to gather and maintain statistical information relating to a connection.

17. (previously presented) The optical switched router of claim 16, wherein the optical service logic is operably coupled to analyze the statistical information off-line for determining SLA compliance, patterns, and trends.

18. (previously presented) The optical switched router of claim 12, wherein the optical service logic is operably coupled to interact with a service provider to enforce penalty provisions in the SLA.

19. (previously presented) The optical switched router of claim 12, wherein the optical service logic is operably coupled to interact with a service provider to negotiate a credit for services not provided by the service provider in accordance with the SLA.

20. (cancelled)

21. (previously presented) The optical switched router of claim 12, wherein the optical service logic is operably coupled to interact with various network elements to rectify a breach of the SLA.

22. (previously presented) The optical switched router of claim 12, wherein the optical service logic is operably coupled to interact with the service provider to dynamically modify the SLA based upon changing user requirements.

23. (previously presented) The optical switched router of claim 12, wherein the optical service logic is operably coupled to interface with a billing/accounting system to provide SLA-related information.

24. (currently amended) A system comprising:

an optical communication network comprising a plurality of optical switched routers, wherein each optical switched router includes an optical switch coupling a plurality of incoming optical interface to a plurality of outgoing optical interfaces using optical switching logic controlled by the logic for managing connections and an optical service agent including a user-to-network interface (UNI) for interfacing with the optical communication network and a peer-to-peer interface for interfacing with peer optical switched routers;

a first network user coupled to the optical communication network via the user-to-network

network interface (UNI) of an optical switched router for obtaining optical communication services from the optical communication network in response the input from the first network user at a user-to-network interface (UNI) and wherein the optical service agent manages a service level agreement (SLA) for the first network user by controlling connections of the optical switch, including interacting with the optical communication network to cause the network to provide replacement services without manual intervention in response to a breach of the SLA; and authentication logic for authenticating requests from the first network user for managing the service level agreement (SLA).

25. (original) The system of claim 24, wherein the optical communication network 10 comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

26. (original) The system of claim 24, wherein the optical service agent is operably coupled to monitor and analyze a connection in real-time for determining SLA compliance.

27. (original) The system of claim 24, wherein the optical service agent is operably coupled to gather and maintain statistical information relating to a connection.

28. (original) The system of claim 30, wherein the optical service agent is operably coupled to analyze the statistical information off-line for determining SLA compliance, patterns, and trends.

29. (original) The system of claim 24, wherein the optical service agent is operably coupled to interact with a service provider to enforce penalty provisions in the SLA.

30. (original) The system of claim 24, wherein the optical service agent is operably coupled to interact with a service provider to negotiate a credit for services not provided by the service provider in accordance with the SLA.

32. (cancelled)

33. (original) The system of claim 24, wherein the optical service agent is operably coupled to interact with the service provider to dynamically modify the SLA based upon changing user requirements.

34. (original) The system of claim 24, wherein the optical service agent is operably coupled to interface with a billing/accounting system to provide SLA-related information.

35. (previously presented) A method for managing service level agreements in an optical communication system at an optical switched router, wherein the optical switched router includes a plurality of incoming optical interfaces, a plurality of outgoing optical interfaces and an optical switch coupling the plurality of incoming optical interfaces to the plurality of outgoing optical interfaces, the method comprising at least one of:

authenticating a request for communication services at a user-to-network interface (UNI) of the optical switched router, the request including a service level agreement (SLA);

monitoring and analyzing the connection in real-time for determining SLA compliance using a peer-to-peer interface of the optical switched router;

gathering and maintaining statistical information relating to a connection;

analyzing the statistical information off-line for determining SLA compliance, patterns, and trends;

interacting with a service provider via the peer-to-peer interface to enforce penalty provisions in the SLA;

interacting with a service provider via the peer to peer interface to negotiate a credit for services not provided by the service provider in accordance with the SLA;

interacting with a service provider via the peer-to-peer interface to negotiate "replacement" services for a breach of the SLA;

interacting with various network elements to rectify a breach of the SLA;

interacting with the service provider to dynamically modify the SLA based upon changing user requirements;

controlling the optical switch of the optical router in response to the SLA; and

interfacing with a billing/accounting system to provide SLA-related information.

36. (original) The method of claim 35, wherein monitoring and analyzing a connection in real-time for determining SLA compliance comprises at least one of:

monitoring the integrity of the connection to verify that the connection meets certain SLA criteria;

monitoring traffic on the connection to verify that the connection meets certain SLA criteria;



querying a core optical communication network in order to obtain information compiled by the core optical communication network for verifying that the connection meets certain SLA criteria; and

querying in order to obtain information compiled by the peer users for verifying that the connection meets certain SLA criteria.

37. (original) The method of claim 35, wherein interacting with various network elements to rectify a breach of the SLA comprises at least one of:

re-requesting the connection; and notifying a service provider of the SLA breach; and orchestrating various network changes to resolve or work around the SLA breach.

38. (original) The method of claim 35, wherein interacting with the service provider to dynamically modify the SLA based upon changing user requirements comprises:

determining changing requirements of the user; and

dynamically re-negotiating the SLA to meet the changing requirements of the user.